Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended):

a method of forming a dual damascene via, said method comprises:

providing a wafer, wherein said wafer comprises a first metal layer;

forming a cap layer on said first metal layer;

forming a first dielectric constant dielectric layer on said cap layer;

forming a middle etching stop layer on said first dielectric constant dielectric layer;

forming a second dielectric constant dielectric layer on said middle etching stop layer;

forming a dielectric hard mask layer on said second dielectric constant dielectric layer;

forming a second metal layer on said dielectric hard mask layer;

removing ~~said partial~~ a part of said second metal layer to form a metal hard mask layer on said ~~partial~~ dielectric hard mask layer;

forming a photo mask layer on said second metal layer and said ~~partial~~ dielectric hard mask layer;

removing ~~said partial~~ a part of said dielectric hard mask layer and ~~said partial~~ a part of said second dielectric constant dielectric layer to form a first trench in said dielectric hard mask layer and said second dielectric constant dielectric layer;

removing said photo mask layer;

removing said middle etching stop layer which is at a bottom of said first trench and said ~~partial~~ dielectric hard mask layer;

removing ~~said partial~~ a part of said second dielectric constant dielectric layer to form a second trench in said second dielectric constant dielectric layer and removing ~~said partial~~ a part of said first dielectric constant dielectric layer to form a third trench in said first dielectric

constant dielectric layer, wherein said second trench and said third are connected with each other;

removing said cap layer which is at a bottom of said third trench and removing said middle etching stop layer which is at a partial bottom of said second trench;

forming a third metal layer on said second metal layer and in said second trench and said third trench and filling of said second trench and said third trench; and

removing ~~said partial~~ a part of said third metal layer to expose said second metal layer and making a surface of said third metal layer and said metal layer become a planar surface.

Claim 2 (original):
The method according to claim 1, wherein said second metal layer is titanium.

Claim 3 (original):
The method according to claim 1, wherein said second metal layer is titanium nitride.

Claim 4 (original):
The method according to claim 1, wherein said second metal layer is tantalum.

Claim 5 (original):
The method according to claim 1, wherein said second metal layer is tantalum nitride.

Claim 6 (original):
The method according to claim 1, wherein said second metal layer is aluminum.

Claim 7 (original):
The method according to claim 1, wherein said second metal layer is tungsten.

Claim 8 (original):
The method according to claim 1, wherein said middle etching stop layer is silicon nitride.

Claim 9 (original):
The method according to claim 1, wherein said middle etching stop layer is silicon carbon.

Claim 10 (currently amended):
a method of forming a dual damascene via, said method comprises:

providing a wafer, wherein said wafer comprises a first metal layer;

forming a cap layer on said first metal layer;

forming a first dielectric constant dielectric layer on said cap layer;

forming a middle etching stop layer on said first dielectric constant dielectric layer;

forming a second dielectric constant dielectric layer on said middle etching stop layer;

forming a dielectric hard mask layer on said second dielectric constant dielectric layer

forming a second metal layer on said dielectric hard mask layer;

removing ~~said partial~~ a part of said second metal layer to form a metal hard mask layer on said ~~partial~~ dielectric hard mask layer;

forming a bottom anti-reflective coating on said second metal layer and said ~~partial~~ dielectric hard mask layer;

forming a photo mask layer on said bottom anti-reflective coating;

removing ~~said partial~~ a part of said dielectric hard mask layer and ~~said partial~~ a part of said second dielectric constant dielectric layer to form a

first trench in said dielectric hard mask layer and said second dielectric constant dielectric layer;

removing said bottom anti-reflective coating and said photo mask layer;

removing said middle etching stop layer which is at a bottom of said first trench and said ~~partial~~ dielectric hard mask layer;

removing ~~said~~ ~~partial~~ another part of said second dielectric constant dielectric layer to form a second trench in said second dielectric constant dielectric layer and removing ~~said~~ ~~partial~~ a part of said first dielectric constant dielectric layer to form a third trench in said first dielectric constant dielectric layer, wherein said second trench and said third are connected with each other;

removing said cap layer which is at a bottom of said third trench and removing said middle etching stop layer which is at a partial bottom of said second trench;

forming a barrier layer on said second metal layer, said partial bottom of said second trench, a sidewall of said second trench, said bottom of said third trench, and a sidewall of said third trench;

forming a third metal layer on said barrier layer and in said second trench and said third trench and filling of said second trench and said third trench; and

removing ~~said~~ ~~partial~~ a part of said third metal layer to expose said second metal layer and making a surface of said third metal layer and said metal layer become a planar surface.

Claim 11 (original):
The method according to claim 10, wherein said second metal layer is titanium.

Claim 12 (original):
The method according to claim 10, wherein said second metal layer is titanium nitride.

Claim 13 (original):
The method according to claim 10, wherein said second metal layer is tantalum.

Claim 14 (original):
The method according to claim 10, wherein said second metal layer is tantalum nitride.

Claim 15 (original):
The method according to claim 10, wherein said second metal layer is aluminum.

Claim 16 (original):
The method according to claim 10, wherein said second metal layer is tungsten.

Claim 17 (original):
The method according to claim 10, wherein said middle etching stop layer is silicon nitride.

Claim 18 (original):
The method according to claim 10, wherein said middle etching stop layer is silicon carbon.

Claim 19 (original):
The method according to claim 10, wherein a material of said third metal layer is copper.

Claim 20 (original):
The method according to claim 10, wherein said barrier layer is tantalum nitride/tantalum.

Claim 21 (original):
The method according to claim 10, wherein said barrier layer is titanium nitride/titanium.

Claim 22 (currently amended):
a method of forming a dual damascene via, said method comprises:

providing a wafer, wherein said wafer comprises a first metal layer;

forming a cap layer on said first metal layer;

forming a first dielectric constant dielectric layer on said cap layer;

forming a middle etching stop layer on said first dielectric constant dielectric layer;

forming a second dielectric constant dielectric layer on said middle etching stop layer;

forming a dielectric hard mask layer on said second dielectric constant dielectric layer

forming a second metal layer on said dielectric hard mask layer;

removing ~~said partial~~ a part of said second metal layer to form a metal hard mask layer on said ~~partial~~ dielectric hard mask layer;

forming a bottom anti-reflective coating on said second metal layer and said ~~partial~~ dielectric hard mask layer;

forming a photo mask layer on said bottom anti-reflective coating;

removing ~~said partial~~ a part of said dielectric hard mask layer and ~~said partial~~ a part of said second dielectric constant dielectric layer to form a first trench in said dielectric hard mask layer and said second dielectric constant dielectric layer;

removing said bottom anti-reflective coating and said photo mask layer;

removing said middle etching stop layer which is at a bottom of said first trench and said ~~partial~~ dielectric hard mask layer;

removing ~~said partial~~ another part of said second dielectric constant dielectric layer to form a second trench in said second dielectric constant

dielectric layer and removing ~~said~~ ~~partial~~ a part of said first dielectric constant dielectric layer to form a third trench in said first dielectric constant dielectric layer, wherein said second trench and said third are connected with each other;

removing said cap layer which is at a bottom of said third trench and removing said middle etching stop layer which is at a partial bottom of said second trench;

forming a barrier layer on said second metal layer, said partial bottom of said second trench, a sidewall of said second trench, said bottom of said third trench, and a sidewall of said third trench;

forming a copper layer on said barrier layer and in said second trench and said third trench and filling of said second trench and said third trench;

removing ~~said~~ ~~partial~~ a part of said copper layer to expose said second metal layer and making a surface of said third metal layer and said metal layer become a planar surface;

removing said barrier layer which is on said second metal layer to expose said second metal layer; and

removing said second metal layer which is on said dielectric hard mask layer to expose said dielectric hard mask layer.

Claim 23 (original):
The method according to claim 22, wherein said second metal layer is titanium.

Claim 24 (original):
The method according to claim 22, wherein said second metal layer is titanium nitride.

Claim 25 (original):
The method according to claim 22, wherein said second metal layer is tantalum.

Claim 26 (original):
The method according to claim 22, wherein said second metal layer is tantalum nitride.

Claim 27 (original):
The method according to claim 22, wherein said second metal layer is aluminum.

Claim 28 (original):
The method according to claim 22, wherein said second metal layer is tungsten.

Claim 29 (original):
The method according to claim 22, wherein said middle etching stop layer is silicon nitride.

Claim 30 (original):
The method according to claim 22, wherein said middle etching stop layer is silicon carbon.

Claim 31 (original):
The method according to claim 22, wherein a material of said third metal layer is copper.

Claim 32 (original):
The method according to claim 22, wherein said barrier layer is tantalum nitride/tantalum.

Claim 33 (original):
The method according to claim 22, wherein said barrier layer is titanium nitride/titanium.

Claim 34 (original):
The method according to claim 22, wherein said dielectric hard mask layer is silicon carbon.

Claim 35 (original):
The method according to claim 22, wherein said dielectric hard mask layer is silicon nitride.

Claim 36 (currently amended):
The method according to claim 22, wherein a thickness of said second metal layer is about 50 to 500 ~~anfstroms~~ angstroms.